JANUARY 1949

FIREMEN

FIFTY-FOURTH YEAR • NATIONAL FIRE PROTECTION ASSOCIATION

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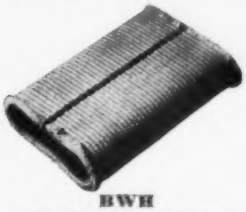

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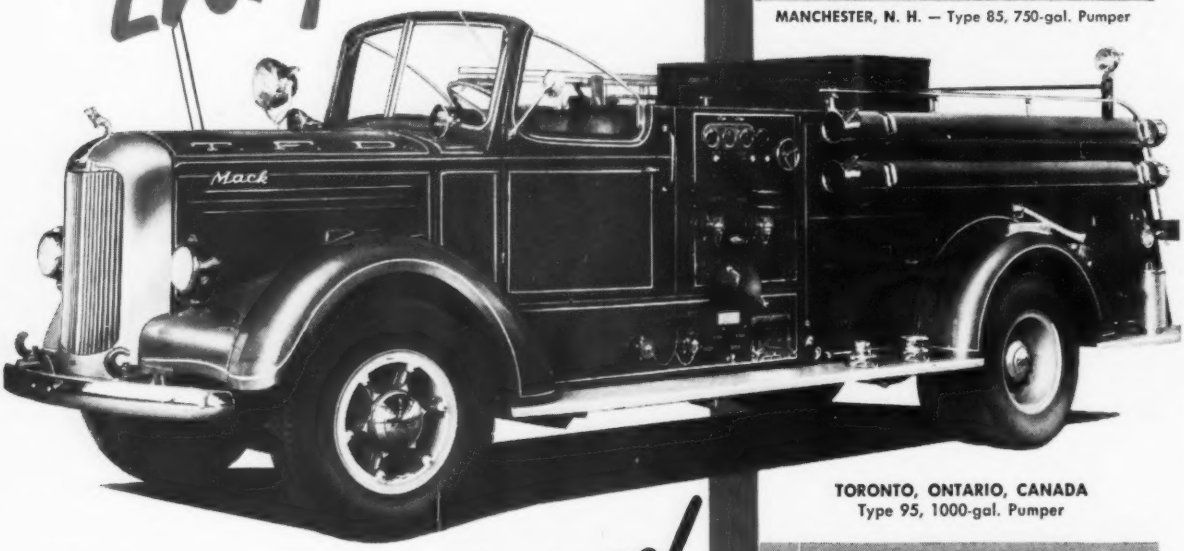

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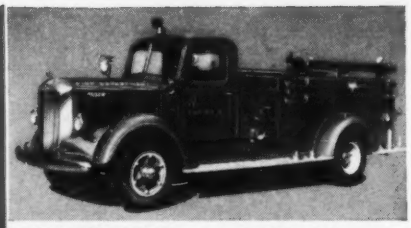

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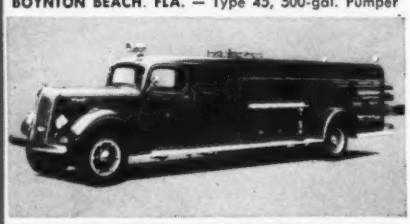

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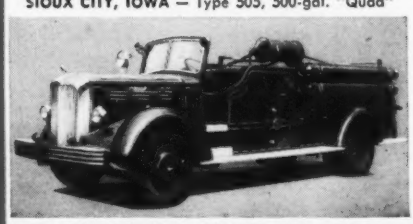

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Firemen

Volume 16 — Number 1

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Accounts of fires appearing in FIREMEN *are copies of or extracts from reports forwarded to the Association. This Association, as a body, is not responsible for the statements or opinions of any of its members.*

THE cover picture this month shows Joseph Boersig, photographer of the Cleveland, Ohio, Fire Department, whose interesting activities are reported by Irv Leiberman on page 7. Persons familiar with the work of Joseph Boersig, both as a cameraman and as an artist who paints pictures of major fires, and as a cartoonist who has recorded with his pencil and pen important fire service meetings such as the Memphis Conference, know that the tribute is fully deserved.

The account of Mr. Boersig's work is also intended as recognition of the important role played by fire department photographers in many fire departments, both large and small. This is one of the important fire department jobs that all too often is taken for granted. More and more fire departments are appreciating the importance of this work and are making photography a full time job and providing both motion picture and still camera equipment and well equipped photographic laboratories.

Briefly, photographs can aid in many fields of fire protection, including recording of serious hazards found by inspectors, proper fire training techniques, views of major fires which may be studied for lessons involved, and as pictorial evidence of fires of suspicious origin.

THE fire department is an emergency service. Unfortunately, in all too many communities of such size as to require full paid fire departments, fire department manpower has been curtailed in the alleged interest of municipal economy to the point where individual companies have barely sufficient manning to operate small hose. When a serious fire is encountered, personnel is lacking to place effective streams in operations promptly, to say nothing of the more important problems of manning ladders to rescue endangered occupants of buildings.

Report after report received in the NFPA Executive Office tells of fire companies answering alarms with only two or three men on each piece of apparatus. In a number of cases there are not sufficient men to regularly man ladder trucks and apparatus carrying heavy stream devices. It is difficult to say what proportion of the major increase in fire losses of recent months is attributable to the very serious undermanning of municipal fire departments. No doubt many fire chiefs would be willing to testify that they can give no assurance of success in combatting serious fires where the available manpower limits immediate operations to small stream equipment.

For many years the National Board of Fire Underwriters in its grading schedule has specified the manual strength which should be on duty with various types of fire companies. This table published on page 672 of the Tenth Edition of the NFPA Handbook of Fire Protection is as follows:

Companies	*Least No. of Men on Duty*
Within or near high-value district:	
Pumper Company	7
Aerial Ladder Company	7
Service Ladder Company	8
Pumper-Ladder Company	10
Hose Company	6
Water Tower or Other Special Appliance Company	1 or 2
Salvage and Rescue Company	5*
In other districts:	
Pumper Company	5
Hose Company	4
Aerial or Service Ladder Company	6
Pumper-Ladder Company	8

* The schedule does not require manning of a salvage or rescue company but allows credit for such manning as offsetting deficiencies.

Every fireman and fire officer should keep these figures clearly in mind as perhaps the best indication of the manpower that is necessary for efficient operation of the costly and expensive fire apparatus necessary to protect typical American communities, and the suggested manpower will permit one man per shift of each company to be assigned to inspection work during the daytime.

With the above figures in mind, it is difficult to understand how companies operating with only two or three men on duty can be considered as effective fire fighting units. Certainly at least four men are required with an engine company operating one piece of apparatus in order to back up the small stream service with the required 2½-in. line. With ladder trucks under favorable conditions, at least three men are required to properly handle a 35-foot ladder and where a ladder company must perform forcible entry, rescue, salvage and other functions, four men on duty would be an absolute minimum for operation of the equipment assigned to a ladder company.

Pre-Fire Planning by Seattle Fire Department

THE firemen of Seattle, Washington, under Chief William Fitzgerald operate a unique "pre-fire planning" program. Each fire company is using pre-planning schedules (as reproduced below) to record data obtained in systematic surveys of buildings in which they may be called upon to fight fire. Inspections are made by entire companies, which with their apparatus, remain available for fire calls received via radio.

The pre-fire planning schedule provides a basis for orderly survey and recording of information for future study. These studies sometimes indicate the need for improvements in water supply and private fire fighting facilities.

Information obtained by each company is exchanged with other companies responding to the location surveyed. In addition to the pre-fire schedule the firemen also fill out a fire prevention inspection schedule covering combustibles, means of egress, and special fire hazards.

Instructions given to Seattle fire companies state that water supply data will be based upon underwriters' flow tests, records of the Water Department, recording gauges in fire stations, and field tests where indicated. Fire companies must determine whether a 300-ft. supply line of 3½-in. hose can supply a 1½-in. nozzle tip at 80 pounds (600 gpm,) with residual pressure of not less than 10 pounds at pumper. Hydrants capable of supplying two pumpers are also noted as are emergency supplies available in event of water main failure.

The battalion chief is consulted with regard to any conditions where heavy streams from ladder pipes or water towers may be needed, and also where especially difficult ventilation conditions such as concrete slab or laminated roofs or ceilings are encountered.

Positions for the first and second companies at various possible fire locations are indicated as "primary and secondary points for operating hand streams." Exterior openings are listed as points of access through which streams may be directed. Obstructions are also noted.

A careful study of this pre-fire planning schedule provides convincing evidence that Seattle fire companies must have a pretty thorough knowledge of the properties in which they may be called to fight fire.

SEATTLE FIRE DEPARTMENT

Pre-Fire Planning Schedule

Name of Building..... .....19.....
Address.....No. Stories.....No. basements.....
Inspector..... Co. No.....
No. and location nearest fire alarm box.....

Engine Cos. in order of arrival:
1st .....
2nd .....
3rd .....

Truck Cos. in order of arrival:
1st .....
2nd .....
3rd .....

Engine Companies in order of arrival by numbers within:
1 mile ..... 2 miles..... 3 miles.....
Ring your company wherever listed above

Number of hydrants located within following distances of building:
300 ft. .....
500 ft. .....
750 ft. .....
1000 ft. .....

Location and distance of hydrant nearest to:
Front bldg.....
Rear bldg. .....

Static pressure nearest hydrant: ..... lbs.

Diameter principal water supply mains:
Front..... Rear..... Sides.....

Hydrants within 300 ft. that will supply 2 pumpers: 1. .....
2. ..... 3. .....

Average GPM available per hydrant.....gpm.

Is a 300-foot, 3½-inch supply line a practical operation at this location: Yes..... No.....
Explain:.....

Hydrants this company would lay from in order of preference are:
1. ..... 2. ..... 3. .....

Is water available in event of water main failure: Yes..... No.....
Source..... Distance.....ft.

Dimensions of bldg.
Length .....ft.
Width .....ft.
Height .....ft.
Area of interior.....cu. ft.

As to perimeter of building:
Abutting streets..... ft.....%
Abutting alley .....ft. .....%
Other .....ft. .....%
Total perimeter .....ft. 100 %

Perimeter accessible for operating large firestreams from st. level:
Accessible .....ft.....%
Not accessible .....ft.....%
Total Perimeter .....ft.....ft.

Distance of greatest firestream penetration in feet:
Front.....ft. Rear.....ft.
Side .....ft. Side .....ft.

Obstructions to penetration are:.....

May a water tower or ladder pipe be necessary for a fire in this building:
Yes..... No..... Reasons.....
No. standpipes..... Location.....
Location S.P. siamese..... No. ports.....
Automatic sprinklers yes..... No..... % coverage.....%
Location: Main valve..... FD siamese.....

The following stories have exterior openings abutting on:
Courts, Nos. ..... Adjoining roofs, Nos.....

Perimeter of walls having exterior openings through:
Completely blank .....ft.....%
Abutting street .....ft.....%
Abutting alley .....ft.....%
Abutting courts .....ft.....%
Abutting roofs .....ft.....%
Total Perimeter .....ft. 100%

No. of stairways.....
Location .....
Continuous: Yes..... No.....
Distance to stairs from
Main entrance .....ft.
Rear entrance .....ft.

No. of fire escapes..... Location.....
Distance fire escape to furthermost point any floor.....ft.

Primary and secondary points for operating hand firestreams are:
Basement 1. ..... 2. .....
Main floor 1. ..... 2. .....
2nd floor 1. ..... 2. .....
5th floor up 1. ..... 2. .....

Entrance to basement in order of accessibility:
1. ..... 2. .....

Amount of fire hose to reach:
Standpipe to next story via stairway .....ft.
Standpipe to next story via fire escape .....ft.
Standpipe to furthermost point any floor .....ft.
Front entrance to 2nd floor via stairs .....ft.
Per story above 2nd floor via stairs .....ft.
Ladder to furthermost point any floor .....ft.
Ladder to next floor via stairs .....ft.
Street to basement best route .....ft.
Street to furthermost point in basement .....ft.

Closest hydrant to S.P. siamese.....ft.
Next closest hydrant to S.P. siamese.....ft.
Closest hydrant to A.S. siamese.....ft.
Next closest hydrant to A.S. siamese.....ft.

Area of skylights .....sq. ft.....%
Area shafts, open or closed .....sq. ft.....%
Area roof structures .....sq. ft.....%
Area ventilating ducts .....sq. ft.....%
Area unincumbered .....sq. ft.....%
Total area of roof .....sq. ft.....%
Total area of roof .....sq. ft. 100 %

Most accessible means of reaching roof to ventilate.....
.....
.....

No. penthouses..... Total area of.....sq. ft.

How may these be ventilated:
Penthouses.....
Elevator shafts .....
Type of roof.....

Opening roof, order of materials is:
1. ..... 2. .....
3. ..... 4. .....

Tools required are as follows: 1. ..... 2. .....
3. ..... 4. .....

Attic measurements:
Greatest height.....ft. Least height.....ft. Av. height.....ft.
Are there scuttles to the attic: Yes..... No.....
Do vent ducts terminate in attic: Yes..... No.....
Type construction of ceiling top floor.....

Degree of difficulty in ventilating: (check)

Elevator shafts	Very difficult.....	Average.....	Moderate.....
Stair wells	Very difficult.....	Average.....	Moderate.....
Ventilating ducts	Very difficult.....	Average.....	Moderate.....
Light wells	Very difficult.....	Average.....	Moderate.....
Penthouses	Very difficult.....	Average.....	Moderate.....

Name in order of preference the means of ventilating from roof:
1. ..... 2. ..... 3. .....

Ventilating for a serious fire, hole in roof should be following dimensions:
Width.....ft. Length .....ft. Area.....sq. ft.
.....

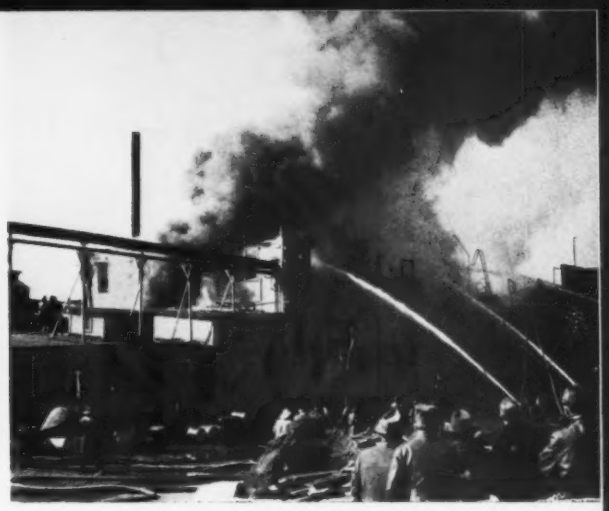
Degree of water tightness of floors is: (check)
Good..... Average..... Poor.....
May water directed down stairs be readily diverted to street: Yes..... No.....

Number of salvage covers required to cover stock will be as follows:
Basement.....Main floor..... Average per floor entire building.....
Is building scuppered: Yes..... No..... If yes, area and number is:.....
In covering stock, the degree of difficulty is: (check)
Very difficult..... Average..... Moderate.....

Impediments to covering stock are as follows:
1. .....
2. .....
3. .....

Name in order of preference means of directing water to basement:
1. ..... 2. .....
3. ..... 4. .....

REMARKS:



Fire Fighter with a Camera

By Irv Leiberman

MOST photographers would give their eye teeth to have some fire pictures like the ones on this page to their credit — for one man, at least, it's a way of making a living! It wasn't always this way, however.

For fourteen years Joseph Boersig donned his fire-fighting clothes at the sound of the bell, and leaped to his place at the wheel of one of Cleveland's ladder trucks. Throughout this time he dreamed of photographing fires; did so at every spare moment from his duties. One day his patience and work were rewarded with his long-awaited appointment as Official Photographer for the Cleveland Fire Prevention Bureau. Now he is on call 24 hours a day, rushing to fires with cameras and flashbulbs as his only equipment.

Boersig's photographs of all extra-alarm fires, and all blazes where something "smells" beside smoke — are studied by department heads for possible traces of arson. Movies, made on the spot at many fires, are used in the rookie firemen's training school. Many time-saving operations or safety practices can be shown very simply from films of actual fires. In addition to the knowledge of a job well-done for his own department, Boersig has the satisfaction of knowing that his photos have been used to illustrate many safety campaigns and fire-prevention lectures.

Not all of the photographs that Boersig takes are spectacular, by any means. Long after the firemen have returned to their stations, he may stay on in the wet, dreary ruins, making the "after" sequence of shots. These are often more useful than pictures of the fire at its height, as far as the department is concerned, for then the traces of the blaze's course and possible origin may show up. No words can describe nearly so well as a dramatic photo, the disastrous results of a child left alone for a few minutes with a box of matches.

Pictures that are used by Fire Prevention Officials and Fire Department heads must have clarity of detail in order to be useful. What may look like a jumbled mass of burned wood in a picture may reveal to the investigator the full story of the fire's origin. Boersig uses the standard type press camera that all newsmen swear by, often coupled with a flash gun for interior or night pictures.

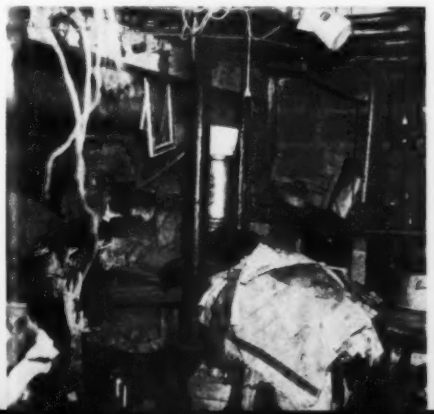
Another use for his work has to do with pictures made on the scene during fire-fighting operations. Study of the pictures show unnecessary grouping of firemen, dangerous places that are unseen by them, or more advantageous ways of combating the blaze. As many football coaches show still and motion pictures of the games to their teams in order to demonstrate good and bad points, so do fire chiefs use films in training their teams.

Photographer Joseph Boersig is as well-known for his enthusiasm as for his photographs — he must be available at all hours of the day or night to answer fire-calls — and he loves it!

Official Photographer for the past fifteen years, he has had the kind of job that would send many men permanently to bed to nurse their ulcers; yet he looks forward to many more years chasing the apparatus with his camera in hand. Like most men, Boersig has a hobby — his love of his work, and his enthusiasm extends even to his hobby. For Joseph Boersig is a painter. And the pictures he paints — are of fires.

●

Photographic evidence of fire hazards.



Pictures aid investigation of fatal fires.

This record of an arsonist's "plant" may be useful in court.

Fire Services in the Civil Defense Program

FIRE departments are at present organized to care for civil defense in peacetime. If there were no other civil defense machinery, the fire departments would fight fires, perform rescue, handle victims of burning or explosions, protect dangerous buildings and carry on salvage and restoration. Those things would not be new to the fire service as they are now considered by fire departments to be duties peculiarly theirs. Firemen's thinking requires little or no conditioning for transition from peacetime to wartime duties.

There are nearly 16,000 organized fire departments in the United States of which only about 900 are composed of full time paid professional firemen, numbering approximately 80,000. New York, the largest city, has a population of 7,500,000 and 11,000 firemen. The number of fully paid firemen may be as few as five or six in cities of around 5,000 population. Some smaller communities are protected by fire departments in which men are paid, but on a part time basis. There are also many departments where the organization membership is "volunteer."

Supplementing these departments are numerous Army, Navy, Air Force and Coast Guard fire-fighting units, some county fire departments not under municipal control, and many private fire brigades in larger industries that employ full time and paid firemen.

In November the U. S. Office of Civil Defense Planning issued a report, "Civil Defense for National Security." The report, in 21 major sections, devoted one section to "Fire Services in the Civil Defense Program." In the preparation of this section, the OCDP was assisted by Chief Frank C. McAuliffe, and ideas were also obtained from an advisory panel of eight fire chiefs and 13 other fire experts. Chief McAuliffe is in charge of the Chicago Insurance Patrol, a director of the NFPA, and, during the period he worked on the report, president of the International Association of Fire Chiefs. A picture of the advisory panel selected by Chief McAuliffe to assist him appeared in FIREMEN, *August 1948.*

The subject matter of the report on the Fire Services and on other features of civil defense represents a suggested plan only. No one is committed to any detail until it is acted on by the Congress. In the meantime, the OCDP is being continued and Carl Dreesen, former battalion chief of the New York Fire Dept. and a member of the NFPA, has succeeded Chief McAuliffe as Fire Fighting Engineer.

Space does not permit reproduction of the entire text of "Fire Services in the Civil Defense Program" and what appears here are parts of the report only. For the complete text get the 300-page report "Civil Defense for National Security" by sending $1.00 to the Superintendent of Documents, Washington 25, D. C.

ORGANIZATION FOR FIRE SERVICES

National Organization. The Office of Civil Defense should have a fire service division, headed by a qualified fire service officer. His staff should include a competent fire protection engineer. The division should develop procedures for operations, training, apparatus and equipment, special housing, clothing and food supplies, and in cooperation with other divisions, develop procedures for communications, structural protection, emergency water supplies, fire prevention and fire guard programs. The division should have a fire services advisory committee consisting of outstanding fire officers and fire protection engineers, selected geographically.

State Organization. States should provide their own fire staffs. The chief of the state fire services division should be a state fire officer as defined by state law or a fire chief assigned for that purpose. He should be the official custodian of any federally issued fire equipment, and will operate a mutual aid plan or other state-wide plan of fire department coordination which may be worked out in the state, all under the State Civil Defense Director.

Local Organization. Each locality should establish a Fire Service Division for Civil Defense. The local fire service units will be the essential base of the Civil Defense Fire Services Division. How they are grouped for operations may depend on the pattern of coordination adopted within the state.

Fire departments usually are under the direction of a municipal council and a municipal executive. The Fire Chiefs are in charge of the uniformed forces and are held responsible for the proper conduct of the personnel, their equipment while in quarters, at fires or other emergencies. To properly fulfill these responsibilities, Fire Chiefs have been accorded certain prerogatives by law, such as right of way, right to commandeer, to enter premises, to demolish or remove property and to be in complete command within fire lines during periods of emergency.

This present responsibility of the fire chief to his usual municipal superior may have to be changed in an area civil defense plan for use of fire service units in wartime. If fire services in a metropolitan area, established for civil defense purposes, are put under a single command, they must become units of a metropolitan fire department, since it is obviously impossible for a municipal fire chief to be responsible to other than a duly constituted superior. If a local fire chief is responsible for carrying out orders of a chief fire officer of a metropolitan area and a Director of Civil Defense, he cannot at the same time discharge a responsibility to the municipal superior (mayor or city manager) he was originally serving. This matter rests with municipal and, to a lesser degree, state governments in accepting changes and perfecting plans for the fire services that may be required for national security.

Personnel recruited for fire fighting on a "self-help" basis should be organized under plans separate from the regular or fire services of civil defense previously mentioned. These persons are organized to use first-aid fire fighting equipment within a particular property, usually on a plant, departmental or tenant-area basis. They have been known as fire guards or fire watchers or in some cases as auxiliary firemen.

FUNCTIONS AND OPERATIONS OF THE FIRE SERVICES

UPON receipt of any form of advance warning of attack, the fire department will follow a pre-arranged plan, to minimize, insofar as possible, complete destruction of fire equipment and crews in any given section of the area. Recall, also based on a pre-arranged plan, will bring off-duty men to dispersal centers to man extra equipment.

Immediately following the attack, field control headquarters would be automatically set up at the location from which the first alarm is dispatched. Radiological officers would be assigned

to the fire service and would respond to the field headquarters upon receipt of the alarm. These men would make the necessary preliminary ground survey to determine extent and degree of contaminated areas for protection of the fire fighting forces. Radiological survey planes of the Armed Forces may fly over the area and transmit vital information to the civil defense control center. This information, in turn, would be relayed to the field headquarters' radiological officers to give them the additional information necessary to properly chart and provide the chief fire officer with the necessary intelligence to plan his operations and protect his personnel.

Additional calls for fire service assistance from the field headquarters would be provided on the move-up principle of companies within the city, those in dispersal locations, and if necessary, forces outside the city, all of which would be handled by the fire alarm headquarters in liaison with the Civil Defense control center. Calls for various other integrated services in the devastated area would be dispatched from the central Civil Defense control center as the fire forces advance and the needs arise.

Fire officers must be prepared for loss of their conventional water supplies and communications. Citizens seeking to escape from the area would create chaos and confusion and further hamper efficient and orderly operations. Under such conditions fire officers must then resort to supplementary facilities and make every effort to carry out their missions.

Fire Department Housing. The vulnerability of existing or new stations should be carefully considered. Additional stations will be required for company locations near the outskirts of cities, for storage of food, clothing and other emergency supplies and to provide housing for firemen bombed out of their regular stations. Additional locations for alternate communications centers and headquarters should be selected as a part of civil defense plans.

Apparatus and Equipment. All potential target areas now have a large part of the equipment necessary for fire fighting in civil defense operations. Certain equipment will be needed in the event of war to supplement that which is now available. This will include such items as: pumpers, (including small portable pumps of various types), small fireboats, standard double jacketed rubber lined fire hose, salvage and roof covers, air compressors, light generators, acetylene cutters, respiratory equipment, jacks, ropes, blocks and tackle, mauls, axes and other minor equipment, additional gasoline and oil trucks, mobile repair facilities, field kitchens, motorcycles, field radio units, portable radio pack sets, voice amplifiers, cots, blankets, special foot gear, clothing and other items.

Such of this equipment as is not now provided by the states and cities for normal operations should be assigned priority procurement status in time of emergency.

Mutual Aid. Many plans and agreements drawn up exclusively between local fire departments are now in operation and they function with varying degrees of dispatch and efficiency. Drills and testing operations provided in these plans are rarely subjected to trial or practice. It is understandable, therefore, that the working units involved in such plans might not perform with any high degree of speed and unity should the need arise.

If not already done, it would be advisable for the fire chiefs and their staffs in the larger cities to confer with officers in charge of other fire departments in their area and arrange a plan of mutual aid whereby the personnel and equipment of these departments could be used in widespread fires or disasters.

These mutual aid forces should be organized, inspected and subjected to occasional test drills to insure proper functioning of specific duties.

TRAINING

Fire Department Personnel. As a general matter, the present training schools and facilities are far from adequate. However, several of the large cities, and a number of the states have established training centers which are beginning to provide substantial school establishments for fire-fighting training. The state programs and some of the local ones receive federal aid through funds appropriated for vocational training of public service employees. One method of carrying out additional training for regular firemen is to increase the support given these existing programs.

At present there are no adequate full-time courses available for advanced officer training, even for the usual peacetime needs for such training. In civil defense, the fire problems are in some respects new and different and courses of training for officers should be established to cover both old and new problems of officers' duties. Several of the existing state training centers (selected from a consideration of location in relation to demand) should be built up to provide advanced as well as rudimentary types of training. They should be provided with additional teaching personnel, buildings and equipment to properly do the work. In a few large cities there is a large fire department personnel which would justify the organization of courses for advanced education of fire officers in local colleges and universities.

Self-Help Group. The training of self-help groups in residential areas can be largely accomplished by arranging to give instructions at fire stations in the use of first aid fire fighting equipment, handling of incendiaries, and methods of calling for fire department assistance under various conditions.

The training of self-help groups in the larger buildings and industrial plants will require visits by fire department inspectors qualified to give training on the use of first aid fire fighting equipment provided within the facilities, in addition to proper procedures for effective maintenance and employment of built-in fire protection such as private hose streams, hydrants, standpipes, sprinkler systems and special fire protection equipment.

An effective program of fire prevention by fire department bureaus should be kept continually in motion throughout industry. This can be done largely through the medium of instruction during periodic inspection of property.

NEW YORK BATTALION CHIEF IS CIVILIAN DEFENSE FIRE ENGINEER

CARL DREESEN, fire fighting engineer, U. S. Office of Civil Defense Planning, was member of New York City Fire Department 1920–1944, reaching the rank of battalion chief through competitive examinations. An officer of the U. S. Navy 1944–1946, he served in Navy fire fighting schools, was fire marshal of the *Europa*, war prize liner from Germany, and fire officer at the Navy's atom bomb tests Able and Baker during Operation Crossroads. Since 1946 he has been instructor with Delehanty Institute of Civil Service, New York. Chief Dreesen was educated at New York City's High School of Commerce and Delehanty Institute. He is 50 years old, is married and lives with his family in Long Island City, N. Y.

The Honorable Seth T. Cole, Chairman Law Committee, Firemen's Association, State of New York, addresses 200 volunteer firemen studying a program of firemanic legislation to be introduced in the 1949 New York State Legislature.

President Arthur M. Hefner of the Firemen's Association of the State of New York presiding at the Legislative Clearing House. At his left (right of photo) are 1st Vice-President Irving J. Wallach and 2nd Vice-President Charles M. Fales.

Volunteer Firemen's Legislative Clearing House

of the State of New York

IN a number of states volunteer firemen's organizations have been embarrased by a lack of unity with regard to proposals placed before their state legislatures. All too often when a firemen's organization from one county or area has secured the introduction of a bill, representatives of other firemen's groups have appeared at legislative hearings to oppose, with the result that all too little legislation needed by the fire service has become law.

This situation does not exist in New York State, thanks to the unique Volunteer Firemen's Legislative Clearing House organized some 14 years ago at the suggestion of Seth T. Cole, Chairman, Law Committee, Firemen's Association of the State of New York. The Clearing House has been organized under the constitution and by-laws of the Firemen's Association of the State of New York, representing close to 200,000 volunteer and exempt firemen and their families in the Empire State.

The theme of the firemen's Legislative Clearing House has always been "democracy in action." Each year, prior to the meeting of the State Legislature, representatives from the various organizations of volunteer firemen throughout the state, meet to study the merits of legislation that has been proposed effecting the volunteer fire service.

To get on the agenda of an annual Legislative Clearing House, a proposal must have been endorsed and referred to the Clearing House by a county association of volunteer firemen and in general also has obtained approval of a regional association embracing several county groups.

A total of fifteen different proposals sponsored by county or regional fire service organizations came before the 1948 Clearing House. Of these, a dozen received unanimous approval, after careful deliberation and free discussion. Two proposals were adopted by voice vote after some difference of opinion had been expressed and one proposal was deferred for further study.

The Clearing House is conducted under usual rules for parliamentary procedure. Each speaker is limited to two minutes unless his time is extended for a specified period by unanimous consent.

By tradition, the president and first and second vice presidents of the Firemen's Association of the State of New York divide equally the honor of presiding at sessions of the Legislative Clearing House. Since the inception of the Clearing House, George H. Feltner of Hudson, Chairman of the Topic Committee of the State Association has served as secretary. For a number of years the Clearing House met at the Firemen's Home in Hudson (see FIREMEN for April 1948) but as the accommodations at the Home were outgrown the meetings were moved to Albany. The 1948 sessions were held in Hotel DeWitt Clinton on November 14, 1948.

One interesting fact about the Clearing House is that the delegates include many of the outstanding active volunteer fire fighters of the state. The 1948 meeting, for example, was in no sense top-heavy with high ranking officers of the State Association. Representatives of county and regional fire groups, some of whom traveled several hundred miles, freely voiced their opinions as to merits of the various proposals.

Adopted unanimously at the 1948 Legislative Clearing House were proposals involving the following subjects of concern to volunteer firemen:

To amend the state workmen's compensation law to give volunteer firemen answering emergency calls the same protection afforded to members of emergency squads.

To amend the workman's compensation law to permit mutual aid response by volunteer firemen to adjoining states and to Canada, as well as to properties controlled by the Federal government. This proposal is considered of importance to the development of regional fire protection and civil defense plans, as well as for normal mutual aid along state borders.

To amend the state memberships corporations law to require public hearings before town boards may consent to the incorporation of new fire companies. This is to give existing fire companies in the community an opportunity to be heard.

To amend the general municipal law to increase the weekly compensation for temporary disability to conform to the workmen's compensation law.

To permit a town board or fire district

commissioners to provide water facgities such as suction pools and cisterns for fighting rural fires. It was pointed out that considerable sums may be spent on apparatus and fire houses but not on water for fire fighting. It was also pointed out that workmen's compensation laws do not permit the highway departments to dig water holes on request. However, many pools of value for rural fire protection are being built under the soil conservation program.

To amend a discriminatory provision of the workmen's compensation law which exempts municipalities from penalties when they delay payment of benefits due to injured volunteer firemen.

To amend workmen's compensation law so that injured volunteer firemen will obtain the maximum compensation of $32 weekly regardless of their compensation in their regular vocations.

To amend the general municipal law so that a volunteer fireman called into military service shall receive credit for the time so served against the period required to qualify for the privileges of an exempt fireman in New York State.

To amend the general municipal law to conform with the workmen's compensation law with regard to the time in which an injured volunteer fireman may file a claim.

To amend the workmen's compensation law to include fire districts in county workmen's self-insurance plans. The present law makes fire districts liable for injuries but does not permit participation in county self-insurance plans.

To amend the workmen's compensation law so as to delete reference to the general municipal law which is a holdover from the days before volunteer firemen were protected by workmen's compensation law. At present volunteer firemen's claims must meet dual red tape under both laws.

Propose that compensation of fire companies by a town be on a percentage basis of assessed valuation rather than on a flat fee basis. It was pointed out that many towns merely grant a flat sum toward fire company support. This does not permit the fire departments of many rapidly growing communities to meet their obligations to provide adequate protection where community values have greatly increased.

AFTER discussion which indicated some difference of opinion, a proposal was accepted which would permit the private cars of volunteer firemen to have a flashing light, other than white or yellow, for emergency use. It was stated that the proposal had written approval from the Superintendent of State Police and from the Commissioner of Motor Vehicles.

A proposal for the creation of the office of state fire marshal was voted down after discussion indicated that there was no general agreement as to the scope or possible duties of such an official or just how the position might fit into the existing governmental machinery of the state which now includes a Division of Safety. While it was appreciated that many other interests beside the volunteer firemen would be directly concerned with the proposal to create a state fire marshal, it was voted to request that the president of the Firemen's Association of the State of New York appoint a committee to study the possible need for a state fire marshal.

Another topic which received considerable discussion was the matter of impending state legislation regarding veterans' preference as it affects the fire service. The Clearing House voted to back a bill giving each veteran a definite percentage preference to be applied either toward entrance to the fire service or toward one promotion. It was felt that this was preferable to bills giving veterans absolute preference to all appointments and promotions as these might undermine the merit system in civil service. It was observed that under existing state legislation disabled veterans get absolute preference in fire service promotions and thus many firemen with long records of experience are denied opportunity of advancement while a rookie fireman with disability incurred in military service gets priority.

It was voted to publish the proceedings of the Legislative Clearing House in the *Volunteer Fireman* paper published by the State Association and edited by Mr. Lawrence Riley of Rochester, N. Y. Copies will be sent to the Governor and all members of the 1949 Legislature. While the Firemen's Association and the Legislative Clearing House are strictly non-partisan as far as political party activity is concerned, thousands of volunteer firemen are insistent that although they protect their communities without remuneration their families shall not be permitted to be in want because of disabilities incurred while fighting fires. State officials have learned from experience that the organized fire service is a powerful force. In states like New York, the volunteer firemen and their families and friends make a large number whose views should not be ignored.

The 1948 Legislative Clearing House also voted a resolution of appreciation to U. S. Representative J. Caleb Boggs of Delaware in appreciation for his sponsorship of the U. S. postage stamp commemorating the 300th anniversary of the volunteer fire service in the United States.

General views of the 203 delegates in attendance at the Legislative Clearing House of the Firemen's Association of the State of New York held November 14, 1948, in the Crystal Room of the DeWitt Clinton Hotel in Albany, New York.

Student Firemen Help Protect Stanford University

by Don Berry

The University fire house with 1000 gpm pumper outside. Note 7 story drill tower in rear.

THE Stanford University Fire Department, founded in 1895, is one of the few independent college fire stations in the United States. Six regular and fourteen student firemen, under Chief John M. Marston (member NFPA), protect an estimated $50,000,000 worth of property situated on a 9,000-acre campus 30 miles south of San Francisco.

Under Stanford's unique setup picked students may help defray their college expenses and at the same time perform an important job for the University by serving in its fire-fighting organization. Sleeping quarters are provided upstairs in the firehouse for the boys when on duty, which is twenty-four hours out of every forty-eight. Their salary is $20 per month, and free linen service is provided.

In other respects the Stanford Fire Department is comparable to any small city force. Five vehicles, including a squad truck, ladder truck, 300-gallon tank truck, 1,000-gallon tank truck, and the chief's car make up the Department's rolling stock. Radio communication in all but two of the trucks lend the force added flexibility and coordination.

Grass fires in the tinder-dry foothills of the Coast Range are the usual fare for Stanford's fire-fighters. These more than any other type of conflagration fill the Department's call book, although building fires are also a constant possibility. A three-minute limit on all calls from the campus proper has been set by Chief Marston, and his men have generally stayed under that time in answering an approximate 150 calls in the last year.

Training drills once a week are required for all fourteen non-regulars, at which time a wooden drill tower built into the firehouse is used for practice ladder, hose, and rescue work. During free time, the students on the duty shift usually study at desks scattered about the firehouse, and their scholastic average has been consistently high. This spring quarter a two-unit course in fire engineering will be offered at the University, optional to the student firemen. NFPA member Marshall K. Rouse of the Pacific Fire Rating Bureau will lecture.

Constant and thorough precautions against fire hazards on the Stanford campus, together with efficiency in putting out those fires that have occurred, have kept losses at Stanford at a minimum throughout the years. Inspections of the University's fifty dormitories are made every week by the regulars. A total of 21,000 feet of one-and-one-half-inch hose and 451 fire extinguishers are located in the buildings.

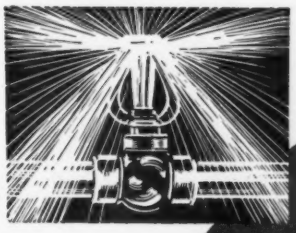
One hundred thirty-seven fire hydrants dot the Stanford campus, supplied from two privately owned reservoirs, Searsville Lake and Felt Lake, nestled in the hills behind the University. Water is fed by gravity through twelve-inch mains.

With an eye for the future needs of his Department, Chief Marston right now is awaiting the arrival of a modern Gamewell alarm system among other equipment. His recently acquired large truck, ordered a year ago, is one of the largest fire engines in California. Mounted on an Army 6 x 6 chassis, it is specially designed to cover rough terrain in combating grass or brush fires.

Chief John Marston and two permanent firemen with a new truck built on an Army 6 x 6 chassis for rough going when fighting brush fires on the 9000 acre campus.

Student firemen practice hose and ladder operations weekly. Shown left to right are Jim Goodwin of Hollywood, Chales Kimball of Ventura, and Jim Kerr of Redwood City, California.

Watchman Supervision



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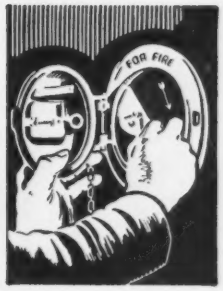

Manual Fire Alarms

Automatic Sprinkler Supervision

Automatic Fire Alarms

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Breakage Tests of Tempered Glass Panels

FIREMEN have been concerned for some time with the problem of forcible entry through door and window panels of tempered glass such as now used extensively in the remodeling of older buildings. A series of tests designed to provide an answer to this problem were conducted cooperatively by the Chicago Fire Department, the Illinois Institute of Technology, the Pittsburgh Plate Glass Company, and the Libby-Owens-Ford Glass Company. The tests took place on the campus of Illinois Tech.

The breakage characteristics of tempered glass are quite different from ordinary plate or window glass due to heat treatment given to tempered glass during manufacture. The heat tempering process results in high tension stresses in the center of the glass and high compression stresses in the exterior surfaces. These stresses balance each other. Manufacturers claim that the special heat treatment given to tempered glass increases its strength and flexibility and its resistance to shock, pressures, impact, and temperatures. It is said that tempered glass is four times as strong after tempering and will withstand without breaking a temperature of 650° F. on one side while the other side is at ordinary temperature. However, as many firemen have learned, when broken, the entire sheet of glass disintegrates suddenly into relatively small crystals.

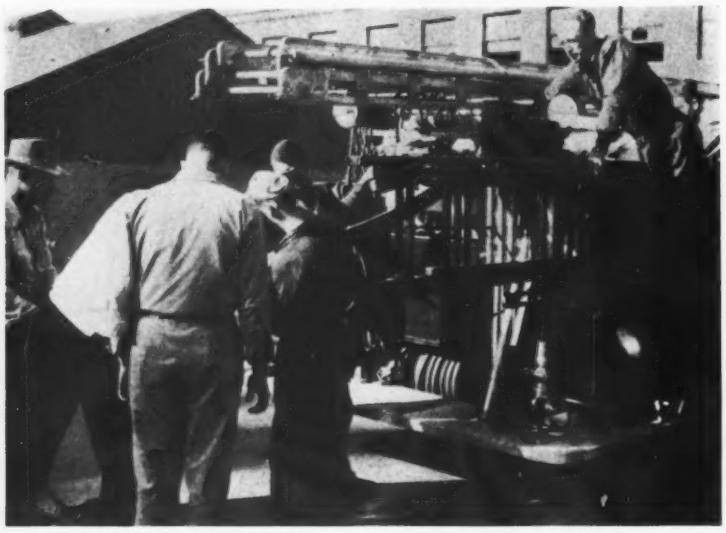
A preliminary series of demonstrations were staged using 12-in. by 12-in. panels of ¾-in. tempered glass to acquaint personnel present with breakage characteristics. These showed when broken with a hammer that ordinary firemen's clothing afforded protection against glass particles. It was also demonstrated that the glass could not be broken with the point of a fire department pike pole and that repeated blows only blunted the steel end of the pike pole. However, breakage was easily obtained by using the pick of an 8½-lb. fire axe. Also, an acetylene cutting torch melted a small hole without apparent damage to the remainder of the panel but the panel shattered after being set aside to cool.

FIVE tests were conducted on standard 3 by 7 ft. doors of ¾-in. tempered glass having standard hardware and full width top and bottom steel channels. In the Test A, a clamp boiler plate punch was used to break the edge of an open door to simulate accidental breakage during fire fighting operations. About three-quarters of the total glass fell within less than 5 ft. and the most remote particle landed 25 ft. away. In Test B, two firemen were unable to break a locked door using a pike pole, merely blunting the tool. In Test C, a fireman working with back toward the door swung a standard fire axe to strike the door with the pick about knee high. The door shattered but remained in position and was easily cleaned out.

In Test D, four firemen used a 26-ft. fire department ladder having metal heels as battering ram. They were unable to break the door which was then broken readily by the pick of a fire axe. In Test E, a door was subjected to intense heat on one side and when streams from hand pumps were directed against the opposite side failure occurred but the fragments remained in place.

The report concludes that a sharp pointed instrument of hardened steel is most effective in breaking tempered glass and that blunt instruments of untempered metals have relatively little effectiveness. The operator should guard against eye injury by turning the face and head away from the door being broken. It is pointed out that each such door is custom built costing between $400 and $600 and requiring 4 to 6 weeks for replacement. Thus whenever it is possible to gain entrance by an alternate means, damage to tempered glass panels or doors should be avoided.

National Gypsum Company Fire Brigade



The National Gypsum Company's Kalamazoo, Michigan, plant last year organized a fire brigade of thirty members with Pete Workentine as chief. The brigade, which is a member of the NFPA Volunteer Fire Company Section, is shown above during one of its monthly drills. Readers will be interested to note the rather complete equipment carried on the pumper includes a large water tank, and ladders including an aluminum 50 ft. extension ladder with poles.

Atomic Energy Plants and Public Fire Departments

THE U. S. Atomic Energy Commission last autumn, arranged a panel discussion of relationships between public fire departments and plants under contract to the Atomic Energy Commission. Leading the panel was Edward J. Kehoe, Chief, Safety and Fire Protection Section, New York Operations Office, Atomic Energy Commission. Speaking for public fire departments was Frank C. McAuliffe, Chief of the Chicago Insurance Patrols, NFPA Director, and then President of the International Association of Fire Chiefs. Clarence M. Alspaugh, Monsanto Chemical Co., and M. H. Cooper, General Electric Co., contributed to the discussion the point of view of two of the largest of AEC industrial contractors. Also a speaker at the panel was Horatio Bond, Chief Engineer, National Fire Protection Association, and a member of the Safety and Industrial Health Advisory Committee, AEC.

The panel on fire department and AEC problems was part of a general two-day conference of Commission and contractor personnel held at Chicago during the National Safety Congress. The conference was under the direction of Daniel F. Hayes, Chief, Safety and Fire Protection Branch, AEC. Round table discussions also considered AEC safety organization and regulations, disaster planning, and integration of safety and health-physics programs in AEC plants.

Recent Important Fires

Jerseyville, Ill., Oct. 2, 1948
Employees of this furniture store searched for smoke for 25 minutes before phoning firemen who found two-thirds of roof space involved in fire. Six 2½ and four 1½-in. lines largely confined flames to 2nd floor and roof. Six outside departments assisted. Loss: $89,600.

Hopwood, Pa., Nov. 5, 1948, *Wide World*
A woman burning brush during a high wind caused destruction of lumber worth $180,000. Tank trucks protected exposed buildings as Uniontown firemen operated pumper relay 1,750 ft. from hydrant. A brook supplied 4 portable pumps. Bulldozers cleared firebreaks through lumber piles.

Elizabethtown, Pa., Oct. 12, 1948, *John Keener*
Fire in asphalt heating unit ignited this stone crusher. Volunteer firemen from the Rheems and Friendship Fire Cos. using two 500 gpm pumpers and a high pressure fog truck knocked down this fire in 15 minutes, pumping from a single hydrant and a quarry hole. Loss: $30,000.

Cleveland, Ohio, Nov. 22, 1948, *Acme*
This three alarm fire destroyed three stores and drove out 20 families living in tenements above but fortunately without injury. Loss estimated at $50,000.

Richmond, Va., Nov. 12, 1948, *Wide World*
A late afternoon fire starting in a defective elevator involved the 4th floor of Roundtree's Furniture Store and spread through unprotected window openings to 6th floor of Masonic Temple. Firemen attacking fire from ladders, stairways and fire escapes as well as with water tower turrets, confined flames to upper floors. Loss: $580,000.

Swift Current, Sask., Nov. 1, 1948
Boiler house of cooperative rendering plant was destroyed by fire when a stack overheated due to improper fuel. Alarm was very late as employees fought fire. Firemen hampered by wood shavings insulation in roof of adjoining laboratory section held destruction to boiler house. Loss: $25,000.

Kansas City, Mo., Nov. 14, 1948, *Acme*
Alarm for fire believed caused by cigarette in empty egg crates in this feed and cold storage warehouse was phoned by watchman at 3:44 A.M. When firemen arrived flames were showing at all windows on 2nd and 3rd floors of the unsprinklered building. Heavy streams were used to drive fire back to permit inside operations. Loss: $50,000.

Miami, Fla., Oct. 15, 1948, *Miami Herald*
Sparks from a defective electrical wall switch ignited packing materials in this electrical appliance warehouse. A wrong address given by telephone delayed initial response. Nine streams from high and low pressure hydrants confined fire to section of origin. Loss: $50,000.

Chicago, Ill., Oct. 4, 1948, *Wide World*
This 8-apartment structure built in 1893 had been remodeled into 42 apartments with over 80 occupants. Some bedrooms facing inside courts were scarcely 4 by 7 ft. in area. Four persons died and 8 were injured when fire of suspicious origin swept rapidly up the stairway at 3:13 A.M. Five alarms were sounded in 11 minutes and firemen rescued many occupants. Loss: $50,000.

Lexington, Ky., Nov. 12, 1948, *Wide World*
Fire started near open stairway in basement of unsprinklered Norwood Hall housing Botany and Geology departments of the University of Kentucky and State Geological Survey office and Department of Mines. Flames raged unnoticed until smoke and explosions attracted outsiders at 4:30 A.M. Firemen were handicapped by defective and poorly located hydrants. Loss: $200,000.

Ogden, Utah, Nov. 14, 1948, *Standard Examiner*
An explosion in the attic shortly after midnight gave first notice that flames were sweeping this Eagles Lodge hall, a former church. Fire occurred a month after the lodge had burned the mortgage on the building. Loss: $120,000.

Pinecrest, Calif., Nov. 27, 1948, *Wide World*
Flames raged unchecked in buildings of a mountain resort 30 miles from Sonora, Calif. Destroyed were the main hotel, dining room, bakery, meat market, grocery and ski shop. Loss: $90,000.

New Rural Fire Truck at Oregon, Wisconsin

By Norton T. Ames, Chairman,
Fire and Police Committee, Oregon, Wis.

THE needs of our rural fire service was the principal thought in the design of the latest fire truck for the Oregon (population 1007), Wisconsin, Volunteer Fire Department. It was found by study of our records that over the 14 year period, 60.6 percent of our alarms were for rural fires. Fortunately, the rural townships about our village readily acknowledged their share of the financial burdens of the Department.

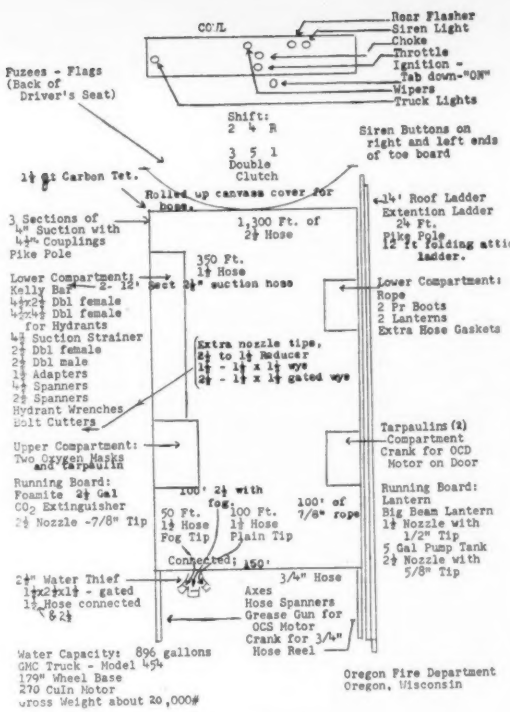
Because of earlier painful experiences of fire loss due to lack of water, the adjacent townships of Dunn, Rutland, Oregon, and Fitchburg in 1940 purchased a new Ford chassis and mounted thereon a cylindrical tank (capacity 792 gallons) and ten 15-gallon milk cans along a deck on the side, making a total of 940 gallons. This truck (shown at right of group photo) and the Pirsch pumper beside it served rural calls. Since 1940 we have learned many points about tank trucks.

To strengthen this rural protection, in July 1948 a second tank truck was added. On a 2½-ton GMC chassis was mounted a flat steel tank, extending only 32 in. above the truck frame, with a capacity of 896 gallons. Our 500 gpm Civilian Defense pump and motor were mounted at the rear of the tank, and a long hose body along the top can easily carry 1,500 ft. of 2½-in. hose. The total cost of chassis, tank, body around the tank, and of mounting the pump and motor was about $6,000 from the Rural Fire Apparatus Co. of Hortonville, Wis.

This gives us 1,830 gallons of water transported to the fire and immediately available. Water service at the fire is taken first from the tank on the new GMC thru the OCD motor.

In the meantime, and without the necessity of haste, the Ford tank is placed in position and connected by 2½-in. stiff hose to the suction side of the pump. Without interruption of delivery the source of water is changed to the Ford. While supplying the hose lines, water is also replaced into the GMC tank. When the Ford tank is empty, the source is again switched without interruption back to the refilled GMC tank. The Ford is disconnected and dispatched for refilling.

Provision is made for as many as possible of the water connections to be left hooked up. On the GMC, the tank is connected by pipe to the OCD pump. A water thief is carried connected to the pump discharge. To one side of the thief is attached one section of 1½-in. hose with a fog nozzle; the opposite side has two sections of 1½-in. hose with a ½-in. tip; and the middle outlet has two sections of 2½-in. hose with a fog nozzle. These short lines are stacked into separate compartments in the hose body.


Rear Flasher
Siren Light
Choke
Throttle
Ignition - Tab down-"ON"
Wipers
Truck Lights
Fuzees - Flags (Back of Driver's Seat)
Shift: 2 4 R / 3 5 1 Double Clutch
Siren Buttons on right and left ends of toe board
1½ qt Carbon Tet.
Rolled up canvas cover for hose.
3 Sections of 4" Suction with 4½" Couplings Pike Pole
1,300 Ft. of 2½ Hose
350 Ft. 1½ Hose
Sect 2½" suction hose
14' Roof Ladder
Extention Ladder 24 Ft.
Pike Pole 12 ft folding attic ladder.
Lower Compartment: Kelly Bar 2- 12' 4½x2½ Dbl female 4½x4½ Dbl female for Hydrants 4½ Suction Strainer 2½ Dbl female 2½ Dbl male 1½ Adapters 4½ Spanners 2½ Spanners Hydrant Wrenches Bolt Cutters
Lower Compartment: Rope 2 Pr Boots 2 Lanterns Extra Hose Gaskets
Extra nozzle tips, 2½ to 1½ Reducer 1½ - 1½ x 1½ wye 2½ - 1½ x 1½ gated wye
Upper Compartment: Two Oxygen Masks and Tarpaulin
Tarpaulins (2) Compartment Crank for OCD Motor on Door
Running Board: Foamite 2½ Gal CO_2 Extinguisher 2½ Nozzle -7/8" Tip
100' 2½ with fog
50 Ft. 1½ Hose Fog Tip
100 Ft. 1½ Hose Plain Tip
100' of 7/8" rope
Running Board: Lantern Big Beam Lantern 1½ Nozzle with 1/2" Tip 5 Gal Pump Tank 2½ Nozzle with 5/8" Tip
Connected; 150'
2½" Water Thief 1½x2½x1½ - gated 1½ Hose connected to 2½
3/4" Hose
Axes
Hose Spanners
Grease Gun for OCS Motor
Crank for 3/4" Hose Reel
Water Capacity: 896 gallons
GMC Truck - Model 454
179" Wheel Base
270 CuIn Motor
Gross Weight about 20,000#
Oregon Fire Department
Oregon, Wisconsin

For this water thief idea we are indebted to an article in the May 1948 issue of FIREMAN, describing the Glen Echo, Maryland, volunteers. We adapted it for rural use with tank streams.

It should be mentioned that on the OCD pump there are two suction openings. The smaller one is permanently connected to the tank by pipe through a valve. The 4½-in. opening in the center of the pump is reduced to 2½-in. and a gate valve attached.

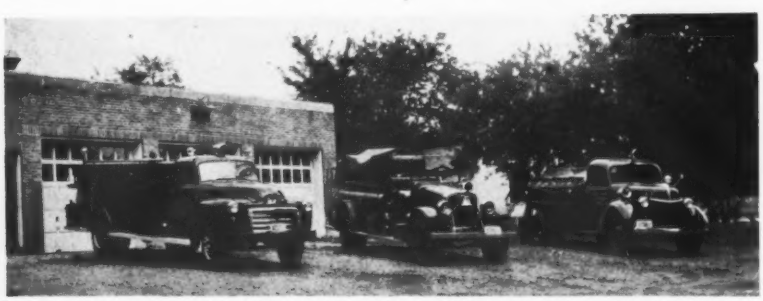
By experience we find that because of the separate motor for the pump, we are able to travel along the line of grass and grain field fires, discharging water while the truck is in motion.

Surging of the load has given some departments driving trouble with their tank trucks. This is at least partly due to inability to completely fill the tank, and thereby insure a solid load. To meet this, the Rural Fire Apparatus Co. provided on a forward corner of the tank a square dome, 16 x 16 and 12 in. high. The tank overflow pipe comes up into this dome 11 in. and to the 1-in. air space on top comes a vent pipe from the top of the rear of the tank. With this 11 in. of water above the tank, the air is all expelled, unless the tank stands on a very steep grade. There are also longitudinal and transverse baffles within the tank, and in the baffles are openings bolted shut, permitting entry, inspection, maintenance, and repair from the man holes in the top of the tank.

We are aware that the gross road weights of our tank trucks, 20,050 lbs. for the GMC and 14,450 lbs. for the Ford, might be difficult on the roads of some territories. However, the country roads in our area are of such a quality that they have not caused any trouble.

Sufficient water supply is carried on the trucks so that entry into soft farm yards can be avoided without a serious percentage loss of water in hose lines. Towing eyes and hooks and towing chains are provided. Certainly, it would not be difficult to drain out a part of the water load, if necessity required.

Besides the items already mentioned, the equipment of the two rural trucks includes 24 ft. and 30 ft. extension ladders, two 14 ft. roof ladders, and a 12 ft. folding attic ladder; 1,300 ft. of 2½-in. hose, 250 ft. of 1½-in, and 150 ft. of ¾-in. booster hose on a reel at the rear; 40 ft. of 4-in. suction, 10 ft. of 2½, and 20 ft. of 2-in. suction; two Chemox masks, tarpaulins, hand water tanks, and the usual smaller items.



Three rural trucks of the Oregon, Wisconsin, volunteer firemen. New tank truck at left. This apparatus transports 1,830 gallons of water to rural fires. A 2000 gallon milk tank truck is available on call. Upper right: Layout of equipment on the new GMC tank truck. Photo was taken before delivery of new ladder equipment for tank truck.

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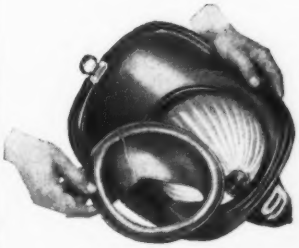

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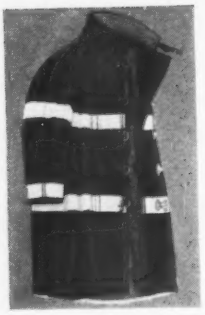

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We now have available: White, Ivory and Brown crude rubber coats for Chiefs, Assistants and other officers; also all sizes short and ¾ length felt lined Firemen's boots for immediate shipment.

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Manufacturers of the Famous **MACKINAW Coats**

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Beacon Ray emits two powerful signal beams (180° apart)

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MEMBERSHIP REPORT

FIREMEN has recently received several inquiries pertaining to the membership dues of the Volunteer Fire Company Section of the National Fire Protection Association. The dues for the enrollment of a company in the section is $12.50 per year, which includes ten subscriptions to FIREMEN. As many more men in some companies also desire a copy, these are made available at $1.00 per year for each extra copy.

As an example, a certain company may have fifteen men that want to subscribe to FIREMEN; the cost of the initial ten copies is $12.50 and for the five extra copies $5.00, making a total of $17.50 for the total annual dues.

In many communities, money for dues has been set aside in the fire department budget. In communities where each man contributes towards the dues, the above $17.50 might be divided among the fifteen men who would each pay approximately $1.17 to the fire department clerk.

In addition to FIREMEN, the $12.50 fire company dues include subscription to the NFPA QUARTERLY magazine, the Monthly NATIONAL FIRE NEWS and numerous other items sent to members.

When members are late in renewing their membership in the Volunteer Fire Company Section, because of the widespread demand for FIREMEN, it is not always possible to send them the back issues. Many companies use material that is published in FIREMEN and other NFPA publications in their winter training program, and in renewing late, may miss out on some of this valuable information.

National Fire Protection Association, International
Associate Membership

VOLUNTEER FIRE COMPANY SECTION

($12.50 annual dues) Eligible:

(1) all bona fide volunteer fire organizations in any community.

(2) all fire departments and companies in communities of less than 25,000 population.

(3) all industrial fire brigades.

Member volunteer fire companies receive ten copies of FIREMEN magazine each month, mailed to the homes of individual firemen. Beyond the ten, additional copies of FIREMEN cost $1 per year.

Volunteer Fire Company Section members receive, at their headquarters, one copy of all publications sent to NFPA associate members.

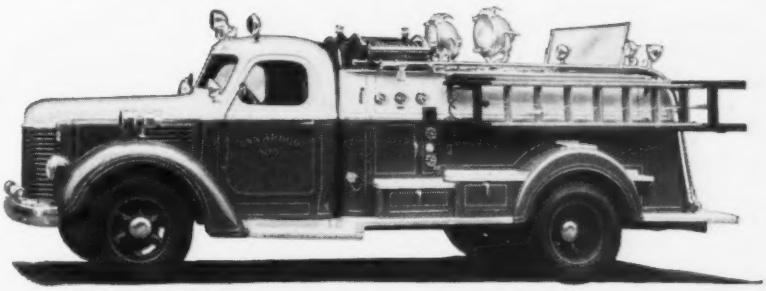
ASSOCIATE MEMBERSHIP ($12.50 annual dues) Eligible: Individual fire department officers, firemen, and others interested in fire safety. NFPA associate members in the fire service receive: one copy of FIREMEN magazine monthly, the NFPA **Quarterly,** the monthly **News Letter,** technical standards, popular bulletins and posters.

All associate members have one vote in Association affairs.

Modernizing a city fire department

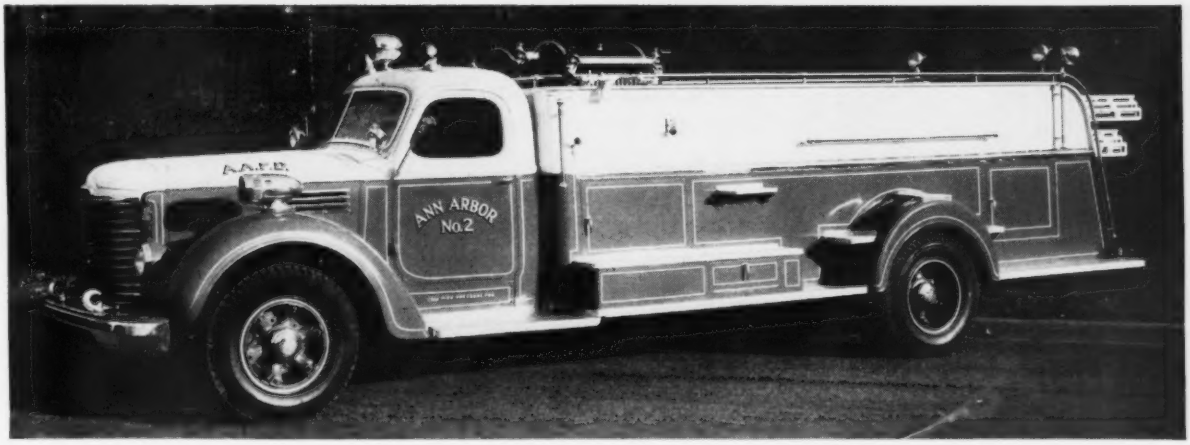
with a John BEAN HIGH-PRESSURE SQUAD TRUCK

THIS JOHN BEAN High-Pressure Squad Truck proved itself ideal at fighting city fires in Ann Arbor, Michigan. 2½-ton chassis; carries its own water supply of 435 gals.; provides two guns of 30 gals., each at 850 lbs. pump pressure.



and a...

John BEAN HIGH-PRESSURE SERVICE and LADDER TRUCK



FOR ADDITIONAL protection, Ann Arbor chose a John Bean High-Pressure Service and Ladder Truck. 5-ton chassis; 400 gals. water; assorted ladders to 45 feet; two guns of 30 gals., each at 850 lbs. pump pressure.

IS JOHN BEAN High-Pressure Fog Fire Protection suitable for city use? Read this case history of Ann Arbor, Michigan:

Two years ago, the Fire Department of Ann Arbor put a John Bean High-Pressure Squad Truck into service. It made every run from its station.

Results were beyond all expectations. Practically all fires were extinguished by Bean High-Pressure Fog.

Later, to make high-pressure fog coverage even more complete, Chief Zahn, of the Ann Arbor Fire Department, selected a John Bean High-Pressure Service and Ladder Truck. This choice had the further advantage of providing all necessary service and ladder equipment desirable when fighting fire with fog.

Now, in Ann Arbor, most of the nuisances of old-time fire fighting are gone. Water damage at blazes and excessive loss due to delay in getting to work on the fire have been eliminated.

Write us for complete information on John Bean High-Pressure Fog fire fighting and equipment.

BEAN Original HIGH-PRESSURE FOG FIRE FIGHTER

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

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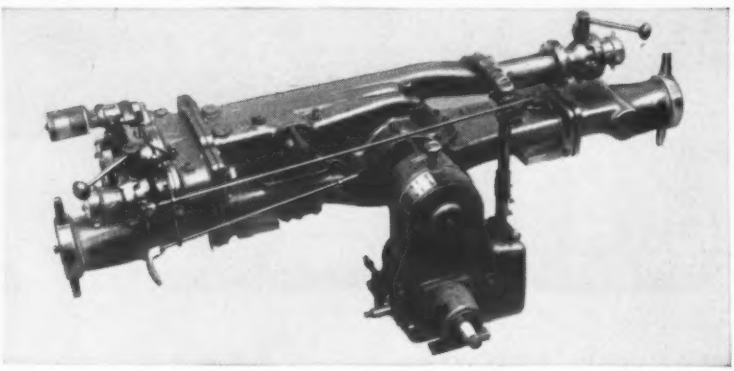
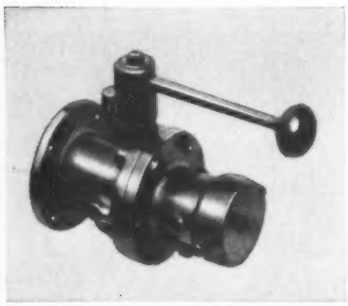
BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

The NEW HALE DISCHARGE VALVE

. . . Product of Constant Hale Research





Easy-turning at all pressures, the new Hale Type BL Discharge Valve can be "gated" and locked into position by a slight turn of handle to prevent creeping. . . . The water flow is through a perfectly round waterway for maximum flow efficiency. Many tests have proved its reliability and freedom from service troubles

The new valve is not sensitive to dirty water and will not leak at pressure or vacuum. Replacement parts are inexpensive, easy to install and do not have to be "ground in." Easy turning and ample handle clearance mean freedom from "knuckle-busting."

The top picture shows two of the Hale Type BL Valves on a Hale ZL 500 GPM multi-service centrifugal. Smaller picture shows a Type BL in open position.

Outstanding features of new "BL" Valve

- **Turns easily at all pressures.**
- **Will not leak at pressure or vacuum.**
- **Circular section through valve cuts flow loss.**
- **Not sensitive to dirty water.**
- **Easily serviced . . . no "grinding in."**
- **Slight twist of handle locks valve into any desired position for gating.**

The HALE TYPE BL DISCHARGE VALVE *is typical of constant Hale improvements resulting from constant research.*

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.

Invalid, Alone in House Saved by Firemen

A RETIRED university professor, Dr. John J. Clarke, paralyzed from the waist down, was alone in his home at Chevy Chase, Maryland, when he heard a crackling sound and smelled smoke. He wheeled his invalid's chair from the first floor bedroom to the adjoining dining room and found it filled with smoke. He then wheeled himself to his bedroom window and raised it to keep from suffocating. He next called firemen from a telephone extension in his room. He then returned to the window to measure the speed of the fire against his own chances of working himself through the window. At this point Chevy Chase firemen rushed into the house and took Dr. Clarke to safety.

"It was a wonderful example of efficiency," he remarked. "I had hardly hung up the phone when I heard those sirens coming. They sure sounded wonderful." The fire, which started in the kitchen caused $2,000 damage.

Recent NFPA Publications

Class A Ovens and Furnaces, Tentative Standards for — 1948, 50c. The NFPA has issued a 48-page booklet containing standards applying to industrial ovens where flammable volatiles from material being processed produce an explosion hazard. These volatiles may include paints and other finishing materials which have been dipped or sprayed.

Fires and Fire Losses Classified, 1947 — Price 25c. This 12-page pamphlet, reprinted from the October 1948 NFPA Quarterly, contains estimates of the number of fires and fire losses in the United States for the year 1947. These estimates include information both as to occupancies in which the fires occurred and the causes of fires.

Fundamental Principles for the Prevention of Dust Explosions in Industrial Plants, 1948 — Price 15c. This 8-page bulletin prepared by the NFPA Dust Explosions Hazards Committee was adopted by the NFPA at the 1948 Annual Meeting. It provides in concise form fundamental information on dust explosion hazards which should be of interest to every fire fighter.

Short Text in Basic Chemistry

"Basic Chemistry for Fire Engineers," 4 by 6½-in., 98 pp. clothbound, prepared by William Kingsley, English fireman and chemistry teacher from lectures intended to cover the syllabus on chemistry of examinations for diplomas of the British Institution of Fire Engineers. The book, written with firemen and fire officers principally in mind,

may be obtained by sending international money order or draft, 10 shillings, 3 pence, to Fire Magazine, 72–78 Fleet St., London, E.C. 4, England.

Training Notes

British Columbia has an excellent fire training program directed by Provincial Fire Marshal W. A. Walker and his staff. A mobile training truck manned by three instructors takes the training program to individual local departments. A printed program covers these items:

1. Class arrangement and discipline, 2. Fire department organization, 3. Chemistry of fire, 4. First aid fire fighting appliances, 5. Inspections, 6. Ladders, 7. Knots, Ventilation, Forcible Entry, Salvage, 8. Rescue, 9. Fire Investigation, 10. Hose Practices, 11. Care of Hose, and 12. General round table discussion.

The program is arranged to include three evening and two afternoons of instruction with instructors devoting their mornings to local inspection and community fire protection problems.

Colorado. Chief Charles O. Bonnelle, State Firemanship Instructor, reports that each individual fireman completing training is issued a card by the State Board for Vocational Education indicating the number of hours of instruction and the type of training completed. In addition, large certificates suitable for framing have been issued to some 40 centers where training programs have been conducted.

Pennsylvania. Ed Spotz, Adviser, Fire Service Training of the Public Service Institute reports that during the fiscal year ending May 31, 1948, 4,050 firemen were registered in and 2,914 graduated from fire training schools. The total registration at the Tenth Annual Fire School held at Lewistown during August was 591 including 156 instructors and manufacturers representatives. During the fiscal year 683 firemen graduated from five regional and county fire schools and 1,903 firemen graduated from local training classes.

Ohio Fire Chiefs Issue New Fire Training Film

A NEW fire training film "Hose Evolutions and Hose Line Equipment" designed to aid in training of new recruits and to provide refresher material for experienced firemen has been issued by the Ohio Fire Chief's Association. Copies of this 16 mm. film — 28 minute showing time — may be purchased at $65 per copy, or may be obtained on a rental basis at a cost of $2.50 per day. Inquiries should be directed to Chief Charles Bryan, Chairman Film Committee, Ohio Fire Chiefs' Association, P. O. Box 486, East Liverpool, Ohio.

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Every building holds a prospect — Homes, Boats, Cars, Garages, Gas Stations, Shops, Laundries, Farms, Hotels, Stores, Factories.

THEY WANT A RANDOLPH with its panic-proof trigger action that smothers the fire instantly in a snowy blanket of carbon dioxide. No mess, no water, no damage, even to food. It evaporates without a trace.

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Flash'N Wag
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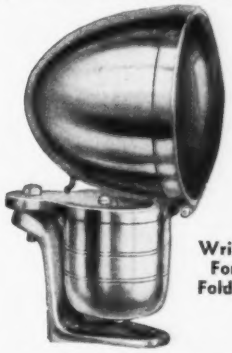

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FIRE HOSE DRYER
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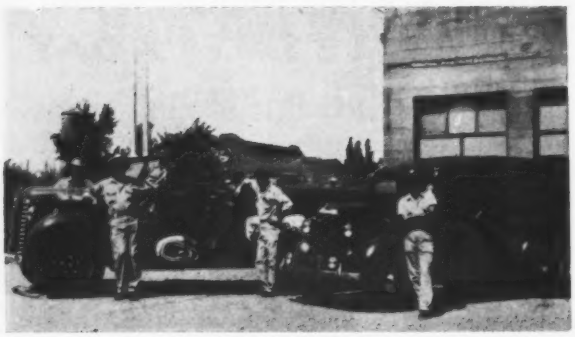
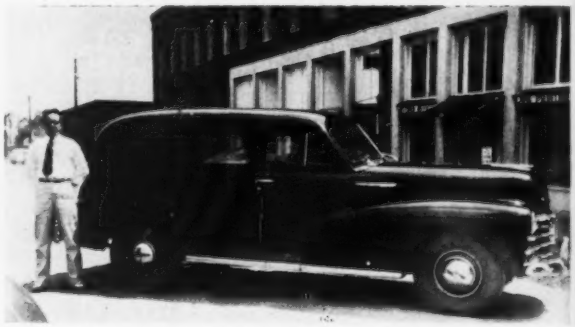
Volunteer Firemen of Westville, Oklahoma, Operate Two Emergency Trucks



Chief Loran Hart beside Water Department truck equipped as emergency car. Emergency squad members beside apparatus.

Personnel of Westville Fire Department with fire apparatus, emergency cars, and members cars used in protecting community.

Lyle Coleman, electrician and first aid man drives the emergency truck of the Public Service Corp. of Oklahoma.



This ambulance is available to the Fire Department through courtesy of the Robert Funeral Home.

THE strength of a volunteer fire department is not alone reflected in the apparatus owned by the city or fire company. For example, the volunteer fire department at Westville, Oklahoma, (member NFPA) has one 500 gpm pumper in the fire station at the city hall to protect the town of 1200 population. However, the Water Department truck which serves as chief's car for Chief Loran Hart is equipped with first aid kits and stretcher for emergency use, and a utility company truck is also equipped as a first aid squad. This volunteer department has 30 members.

Rhode Island Cities Train Firemen to Combat Oil Fires

EACH of 336 fire fighters in the fire departments of Providence and Cranston, Rhode Island, has been trained in the extinguishment of oil fires by the use of spray nozzles at the proving ground of Grinnell Fire-fighting Laboratories. This "experience school" in oil fire fighting was conducted under the direction of Ira W. Knight, Associate Director of Research of Grinnell Corporation, manufacturers of automatic sprinkler and water spray equipment, at the request of Chief Thomas H. Cotter and John T. McLaughlin, Director of Training, Providence Fire Department.

Officers and privates of the Providence Fire Department attended the sessions of the experience school, held three days each week, as a part of their in-service training program. Men of the Cranston Fire Department, at the request of Chief William Young, attended the school on days when they were off-duty. Classes were limited to approximately twenty members so that each member had the opportunity to gain first hand experience in using water spray to put out fires in flammable oils under the personal instruction of Chief Richard W. Hill of the Grinnell Fire-fighting Laboratories and Captain Norman Jones of the Providence Fire Department.

Oil and flammable liquids, for as many as sixty fires each day were contributed by major oil companies with distribution and storage facilities in Providence. Tanks for the storage of fuels used in the fires were installed in accordance with the NFPA Flammable Liquids Ordinance.

Extinguishing fire in 15 ft. diameter tank containing blend of light oil, gasoline, naphtha, using a low-velocity water spray.

Organization and operation of the oil fire experience school was the result of three-way cooperation between the fire departments, the oil industry's local representatives, and Grinnell Company, Inc. It is a plan providing nearby fire departments access to the specialized information and demonstration facilities of manufacturers of fire fighting apparatus. In this case the two fire departments gained access to the results of fifteen years of research and application of water sprays in the extinguishment of oil and flammable liquid fires.

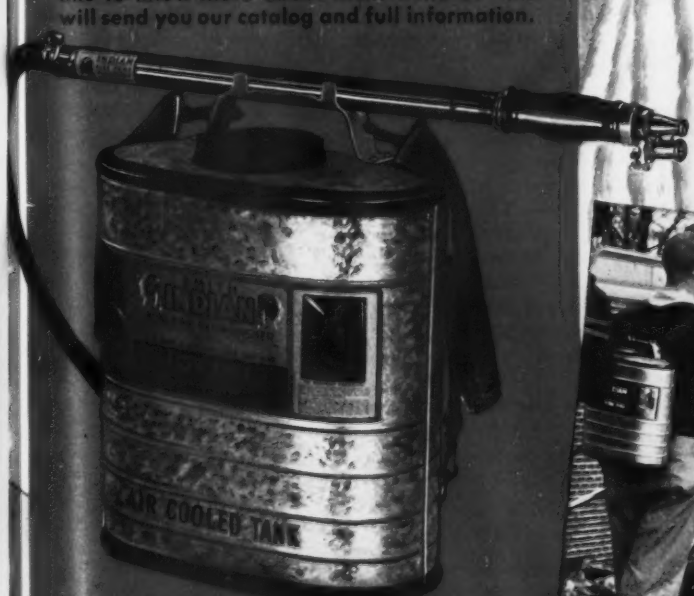
Your Chief Means of FIRE PROTECTION—

INDIAN

Fire Pumps

The leading means of extinguishing inside and outside fires is by use of portable, highly efficient *INDIANS*—the back pack fire pumps that do the job fast and do it right. You'll be amazed at how much fire can be put out with the 5-gallons of water the tank holds.

Perhaps you are now equipped with *INDIANS* and realize what they can do. If so, we suggest you check over your supply to be sure you have plenty for the fire season. If you are not familiar with *INDIAN FIRE PUMPS* and would like to know more about them write us—we will send you our catalog and full information.



Properly formulated wetting agents may be effectively used in *INDIAN FIRE PUMPS* including galvanized tanks now coated on the inside with asphaltic base paint and brass and chrome plated tanks.

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Klamath Falls, Oregon

Fred E. Barnett Co.
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Portland, Oregon

CANADIAN AGENTS:

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Vancouver, Canada

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Fyr-Fyter offers you a Steady Income *Selling*

FIRE EXTINGUISHERS to Homes and Business

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Yes, you'll look far before you find a finer opportunity for building a business of your own. Hundreds of prospects. The finest fire extinguisher line of them all . . . Underwriters' approved. Whether you're old or young, you can be your own boss and have a permanent, steady income.

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Write letter, giving age, experience, etc. Get this booklet describing the famous Fyr-Fyter sales plan, how you earn while you learn, how Fyr-Fyter helps you sell, etc. If you are willing to gamble 3c on a brilliant future, write today.

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MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

Range of Small Solid Streams

DESPITE the fact that in the experience of the average fire department perhaps 9 out of 10 fires are controlled by small streams, and that the effectiveness of such streams is often a factor making the use of larger streams unwarranted, all too little study has been given to the use and characteristics of small hose streams. There appears to have been heretofore no published tables showing the reach of streams from nozzles smaller than 1-in. diameter. The term small stream as used here includes nozzle tips from ¼-in. to ¾-in. diameter whether supplied by ¾-in, 1½-in. or 2½-in. hose.

Where water supplies are limited, as at rural fires, the reach of small streams may be an important factor in fire control. Reach of small streams may also be of importance on inside operations where height of ceilings, or depth of rooms are greater than average. Accordingly during October 1948 the Editor of FIREMEN, with the assistance of the District of Columbia Fire Department, including 7th Battalion Chief A. M. Grunwell (member NFPA), Lieutenant Flaherty and members of Engine Co. 8, and members of the Fire Department Maintenance Division including Superintendent William Boswell, conducted a series of observations of small solid streams from ¼-in., ⅝-in. all purpose nozzles, and from a ¾-in. smooth cone nozzle attached to a 2½-in. play-pipe.

With each nozzle size two series of readings were taken. First each nozzle was secured horizontally at a height equivalent to normal operation by a hose crew (3 ft. 9 in.). The distance at which the jet ceased to be an effective solid stream for fire fighting was judged by fire department members stationed along the level street upon which distances measured with a steel tape had been marked.

Measurements of reach of stream were made with nozzle pressures of 40, 50, 60, 70, and 80 pounds with both ⅝ and ¾-in. nozzles. Beyond 80 pounds nozzle pressure the stream began to break badly and little additional reach could be obtained. With the ¼-in. tip readings were not made beyond 70 pounds because additional pressure did not increase the reach of the stream.

A second series of readings was taken with each tip to show the maximum reach of effective solid stream that could be obtained with the trajectory of the stream elevated by the hose crew. In addition, the maximum reach of the falling spray was noted. It should be recorded that wind velocity was negligible.

While it is appreciated that results may vary somewhat with nozzles of differing design and under differing fire ground conditions, it is felt that these figures will give hose crews some measure of the effective reach to be expected under normal conditions from the small solid streams that are commonly employed in routine fire fighting operations. It may be noted that the various figures in the table below are given to the nearest five feet because with fire ground conditions closer figures would not be practicable. Also it may be observed that with the small sizes of nozzle tips the effective range of stream is somewhat less than one foot per pound of nozzle pressure.

Reach in Feet of Effective Solid Streams from Small Nozzle Tips

Nozzle Pressure (lbs. per sq. in.)	40	50	60	70	80
¾-in. Smooth Cone Tip:					
Effective reach of horizontal jet	50	55	60	65	70
Maximum effective reach with nozzle elevated	60	65	70	70	70
Reach of spray with nozzle elevated	90	90	100	105	105
⅝-in solid stream from all-purpose nozzle:					
Effective reach of horizontal jet	35	45	55	60	65*
Maximum effective reach with nozzle elevated	40	50	55	60	70*
¼-in. solid stream from all-purpose nozzle:					
Effective reach of horizontal jet	30	35	35*	—	—
Maximum effective reach with nozzle elevated	30	—	—	—	—

* Stream beginning to break badly.

TRIPLE PROTECTION against FIRE

1. *Straight stream* can be discharged from the SG-48 Nozzle from small opening by a movement of the control handle, or

2. *High Velocity* WaterFOG with considerable forward projection from high velocity Fog tip, or

3. *Low Velocity* WaterFOG from LIGHTweight Extension Applicator. Fog tip is removed and Applicator inserted.

ROCKWOOD *LIGHTweight*

TRIPLE-ACTION TYPE SG48 WaterFOG NOZZLE

Here is a fire fighting tool that gives *triple-protection* against fires in ordinary combustibles and flammable liquids — Rockwood LIGHTweight Triple-Action SG-48 WaterFOG Nozzle.

This improved Rockwood WaterFOG Nozzle will control or extinguish fires faster with less water and will provide firemen with greater protection from fire, smoke and fumes. It also permits firemen to reach the very root of the fire and to attack it with less physical punishment. Available in ¾", 1", 1½" and 2½" sizes for service on fire hose lines. Designed and constructed for use in municipal fire departments, industrial plants, chemical plants, mercantile and public buildings, oil refineries, etc. Rockwood WaterFOG is approved by Underwriters' Laboratories, and Factory Mutual Laboratories.

Write for bulletin C-501R.

ROCKWOOD (Heavy Duty) APPLICATOR CLIPS

For mounting Rockwood WaterFOG Applicators and other Rockwood equipment on fire trucks, walls, posts, etc. Clips are chromium plated and are highly resistant to corrosion. Write for prices and further information today.

ROCKWOOD

ROCKWOOD SPRINKLER COMPANY

88 HARLOW STREET WORCESTER 5, MASSACHUSETTS

Specialists in Fire Protection Engineering, Equipment and Installation since 1907

"Churches are Burning"

Attractive and well illustrated, this two color 40-page pamphlet contains an analysis of 300 church fires. It has been prepared by the NFPA to guide church officials and others charged with the duty of protecting churches from fire.

Copies are available now from the NFPA, 60 Batterymarch St., Boston 10, Mass., at $1.00 each.

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FOR SALE—TANK TRUCK

1937 Federal Chassis, 200 G.P.M. midship pump, 1100 gallon booster tank, 30' of 3½" hard suction, extension and roof ladders, booster hose, extinguishers, lights, etc. Truck now in service. Full particulars and photographs upon request.

Woodbridge Volunteer Fire Assn. Inc.

Woodbridge, Conn.

MANUFACTURERS' ANNOUNCEMENTS

Emergency Lamp Signal Flare Combination

A NEW, combination emergency light and signal flare, called Big Beam 400-F, has been announced by the U-C Lite Manufacturing Co., 1050 West Hubbard St., Chicago 22, Ill. It is durably made with a rustproof and weatherproof baked enamel steel container for the two standard dry-cell lantern batteries and connections. A double-throw, single pole switch gives instant selection of either the steady light or a flashing flare with 100-112 flashes per minute. The light is visible in all directions for over 600 feet. Two independent bulbs are used; in event one burns out, the other continues to operate. A third bulb in a dummy socket is readily available in case of a burnout. The bulbs are covered with a red lens of molded plastic that directs the light in horizontal beams. Unit is available also with clear, amber or blue lense. A descriptive folder with detail information is available from the manufacturer.

Halligan Forcible Entry Tool

AN OFFICIAL tool of the Fire Department of New York, the Halligan Forcible Entry Tool has been so designed that hands, arms and the body of the user are afforded almost complete protection by the design of the head. After penetration of the claw is made and while the opening and spreading effect of the tool is being exerted, the hook end becomes a firm grip to steady the tool, facilitating movement of the free hand upward to apply maximum pressure. Upon completion of the forcing motion, the axe completely protects the hands of the user. This tool may be adapted for both the comparatively light work of residential districts and the heavier work encountered in the commercial districts by simply varying the tool proportions in scale. This tool is manufactured by the Halligan Tool Company, 1505 Metropolitan Ave., N.Y.C. 62, N. Y.

Homelite Announces Catalogue

THE Homelite Corp. has issued a new 12-page bulletin describing their complete line of carryable gasoline-engine-driven generators. This attractive 2-color bulletin L-408 shows the many uses for carryable electric power. It shows how time and money can be saved in the use of electric tools and contains a check list of qualities to look for in a generator as a guide in selecting a unit to meet all requirements. Complete structural details are described and illustrated with cutaway photographs. The complete line of Homelite generators include units from 500 to 5000 watts, weighing from 57 to 178 pounds. The major groups of units are: 115-volt AC for general power services; 120-volt DC for Universal electric tools and floodlights; 115 or 230-volt AC dual-voltage generators for services requiring both voltages; dual-purpose high cycle generators for new high-cycle electric tools and standard tools; 6–160-volt DC generators for battery charging; and special gasoline-driven and electric motor driven generators for specific applications.

Motorola Develops Volunteer Firemen's Home Receiver

TO MEET the demand for a means of rapidly calling volunteer firemen into action, Motorola, Inc., of Chicago, has developed a Home Receiver unit to tie in with existing fire department radio systems. It operates in the 152–162 mc. band on AC power. Under operating conditions, the receiver remains on standby 24 hours a day, staying silent until a message is dispatched. By means of the Quik-Call system, the dispatcher at headquarters may activate all receivers simultaneously or call any individual receiver. When a message is transmitted, the home receiver comes on and the message given, after which the receiver remains on and squelch noise heard until the person called turns it off manually. In the event any member of the department is absent from home, the squelch noise continues until he arrives home and serves to inform him of the call made in his absence and to call headquarters for information and instructions.

Young Fire Equipment Corp. to Service Buffalo Motor Fire Apparatus

MR. CHARLES H. STEPHENS, President of the Buffalo Fire Appliance Corporation and Lester W. Young, President of the Young Fire Equipment Corporation announce the completion of arrangements whereby the Young Fire Equipment Corporation of 1546 William St., Buffalo, N. Y., will maintain service facilities for the Buffalo motor fire apparatus. Mr. Stephens points out that the Young Fire Equipment has had 20 years' experience with motor fire apparatus and have adequate personnel and facilities to give excellent and dependable service. It is suggested that those desiring service contact the Young Fire Equipment Corporation direct in order to eliminate delays.

FOR SALE

8-cylinder Studebaker pumper fire truck. For details write:

New Providence Fire Dept.
L. Adams, Secretary
New Providence, N. J.

WHY CITIES *Prefer*

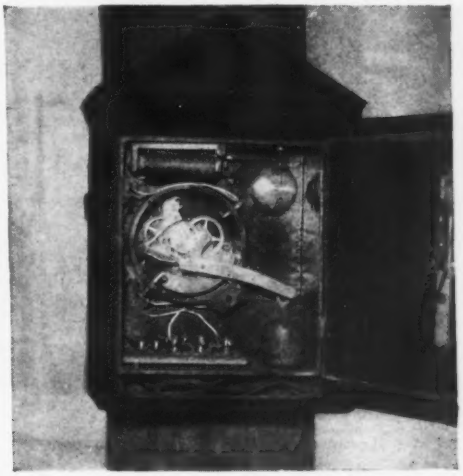
GAMEWELL

TWO GOOD REASONS ARE:

ECONOMY AND DEPENDABILITY

Gamewell Fire Alarm Box, 1868 Model
Normal Position

1868



Gamewell Fire Alarm Box, 1868 Model
Doors Open, Exposing Mechanism

Prior to the adoption of our trade mark "Gamewell and Clenched Fist" the year of manufacture was cast on the outer cases of our boxes.

The box shown above, Code Number 62, manufactured and installed in 1868, is still in service at Oxford and Hammond Streets, Cambridge, Massachusetts.

This box has never been subjected to factory reconditioning, yet after 80 years of continuous service the mechanism is untarnished, shows no perceptible signs of wear, and continues to send test and fire signals with unfailing accuracy.

We invite your inquiry.

1949

The Modern Fire Alarm Box
Three-Fold Type (Being Operated)

THE GAMEWELL COMPANY

NEWTON UPPER FALLS 64, MASSACHUSETTS

In Canada: Northern Electric Company, Ltd., Montreal

it's here!

NEW ALFCO

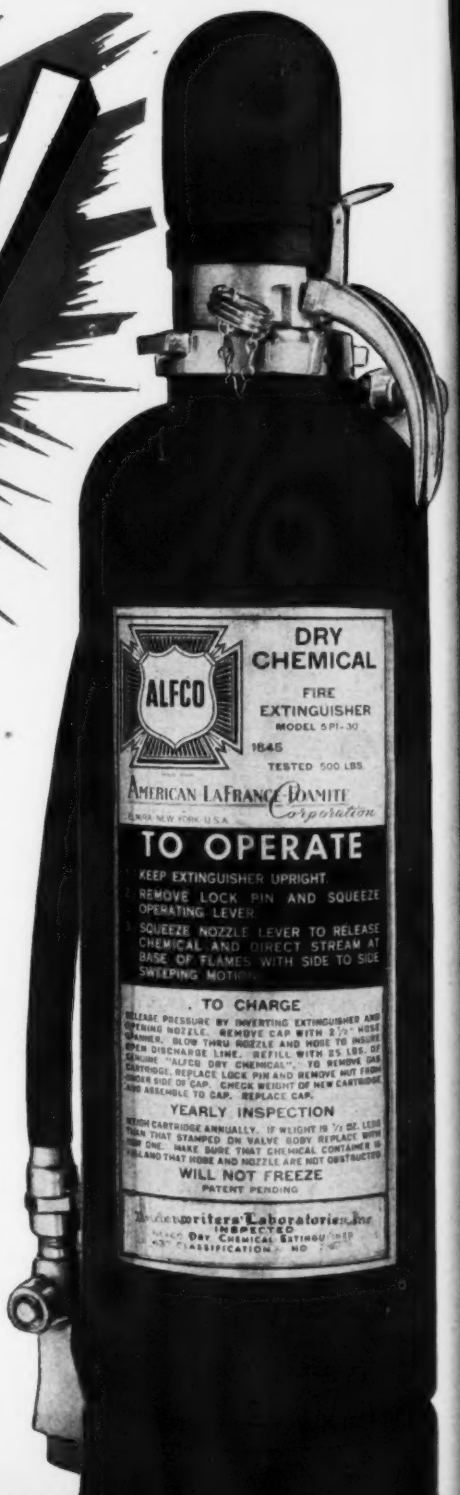
DRY CHEMICAL

FIRE EXTINGUISHER

has these outstanding advantages . . . Longer range at all climatic temperatures! . . . Longer duration of discharge at all climatic temperatures! . . . More complete discharge of Dry Chemical contents! . . . May be operated in any carrying position! . . . Scientifically designed nozzle provides for wider coverage of fire area! . . . Gas-tight, all-internal expelling gas connections! . . . Built-in safety disc! . . . Hose couplings neatly swaged to hose for greater strength, smarter appearance! . . . High hose-mounting position avoids compacting of Dry Chemical—affords neater appearance! . . . Easy to recharge without special devices or replacement parts! . . . Occupies only 7" x 9" floor space! . . . Lighter weight—only 42 lbs. when ready for use! . . . Alfco Dry Chemical is non-toxic, noncorrosive, nonconductor of electricity and will not freeze! Underwriters' ratings: B-1, C-1. Recommended for flammable liquid and electrical fires.

Overall height 30"; Floor space occupied 7"x9"; Weight of Extinguisher, empty 17 lbs.; Weight of Dry Chemical Charge 25 lbs.; Weight of Gas Charge 8½ ozs.; Weight of Extinguisher charged for use 42½ lbs.; Total Weight packed for shipping 45 lbs.; Nozzle Polished Aluminum 6" long; Hose and Nozzle lengths approx. 26"; Shell Drawn Silicon Bronze; Finish Baked Red Enamel with Chrome, and Polished Aluminum trim.

Write us for literature and for demonstration.



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